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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,057	06/24/2003	Shoji Hinata	9319S-000511	8554

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EXAMINER	
VU, PHU	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/603,057	HINATA ET AL.	
	Examiner	Art Unit	
	Phu Vu	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 refers to a first, second, third, and fourth polarized light. The source of these lights cannot be ascertained from the specification or the claims therefore for examining purposes the light source is deemed arbitrary. Also claim 3 claims "a transmitting polarization axis varying unit converts at least part of the third light to the first polarized light." For examining purposes this will mean it changes the polarization state of the light.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-2, 19 , 23, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Kotchick et. al US Patent 6624936. Kotchick discloses a display device comprising: a display unit adapted to allow a first polarized light to be emitted as display

light (figure 4 element 400), a control unit adapted to control the display unit (figure 4 element 409), wherein the display unit has a polarized light selecting unit transmits the first polarized light and reflects a second polarized light having a polarization axis crossing a polarization axis of the first polarized light (figure 4 element 412 and column 4 lines 28-33) and a control (figure 4 element 409) unit that switches between a display mode, in which the first polarized light is emitted from the display unit as display light, and a mirror mode, in which the first polarized light is not emitted from the display unit (see column 8 line 66- column 9 line 9).

Further regarding claim 2 the control unit prevents light emission of the display through rotation the first polarization layer (see column 9 line 3).

Further regarding claim 23, the reference discloses typical use for liquid crystal display devices (see abstract).

Further regarding claim 26, the rejection parallels the rejection of claim 1. Display mode is regarded the same as "display mode."

Claim 3 – 4, 7, 10, 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Watson et. al US PGPub 2003/0063236. Watson discloses a display device having a transmitting polarization axis varying unit (figure 4 element 106), the display device including, a first polarized light selecting unit disposed on a viewing side of the transmitting polarization axis varying unit (figure 4 element 104) a second polarized light selecting unit (figure 4 element 108) disposed on a backside of the transmitting polarization axis varying unit, wherein the first polarized light selecting unit transmits a

first polarized light and reflects a second polarized light having a polarization axis crossing polarization axis of the first polarized light, the second polarized light selecting unit transmits a third polarized light and absorbs or reflects a fourth polarized light having a polarization axis crossing a polarization axis of the third polarized light, and the transmitting polarization axis varying unit converts at least a part of the third polarized light to the first polarized light.

Regarding claim 4 figure 5 shows a display wherein no other transmitting polarization axis varying unit is disposed on the viewing side of the first polarized light selecting unit.

Regarding claim 7, figure 5 shows a second polarized light selecting unit that transmits the third polarized light and reflects the fourth (see element 108).

Regarding claim 10 the reference discloses a light adapted to emit a light to the viewing side disposed on the backside of the second polarized light selecting unit (see figure 4 element 110).

Regarding claim 12, "when the lighting unit is off" can be interpreted as the display being off. No displays will emit light when the lighting unit is off therefore this is inherent to the reference.

Regarding claim 19, the reference states that typical use of the invention is in an LCD and other electronic displays (see [0087]). Therefore a screen or "transparent member disposed on the viewing side the first polarized light selecting unit" is inherent to the reference or in the alternative obvious over the reference. Since no other elements are found on viewing side of the light selecting unit, a transparent screen

disposed directly or indirectly adjacent to the light selecting unit is inherent to the reference

Claims 24-25 rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Watson et. al 2003/0063236. For rejection of the base claim see 102 rejection of claim 3. Regarding claims 24 and 25, the reference discloses application of the panel for use in liquid crystal displays and other electronic devices. Therefore a display device and drive unit to drive the transmitting polarization axis-varying unit electronically is inherent of the reference or in the alternative obvious over the reference. A lighting control unit is also inherent to the display since it must have means of turning off and in the alternative this limitation is obvious.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5, 6, 8, 9, 13-18, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et. al as applied to claim 3 above, and further in view of Kuroiwa et. al US Patent No. 6317180.

Regarding claim 5, Watson discloses all the limitations of the claim except a third polarized light selecting unit adapted to transmit the first polarized light and to absorbe the second polarized light disposed between the first polarized light selecting unit and the transmitting polarization axis varying unit. Regarding claim 5, Kuriowa discloses an absorbtive polarizer disposed on top the transmitting polarization axis varying unit (see cover figure element 120).

Regarding claim 6, Watson also discloses a lighting device on the backside of the second polarized light selecting unit (element 171). Watson discloses all the limitations of the claim except, wherein the second polarized light selecting unit transmits the third polarized light and absorbs the fourth polarized light, a fourth polarized light selecting unit disposed between the second polarized light selecting unit and the lighting device, and the fourth polarized light selecting unit transmits the third polarized light and reflects the fourth polarized light. Kuroiwa discloses a second polarizer light selecting unit that transmits a third polarized light and absorbs the fourth polarized light (element 140), a fourth light selecting unit disposed between the second polarized light selecting unit and the lighting device (element 160) and this fourth polarized light selecting unit transmits the third polarized light and reflects the fourth.

Regarding claim 18, Watson discloses all the limitation of the claim except a retarder disposed between the first polarized light selecting unit and the transmitting polarization axis-varying unit. Kurowai discloses a retarder disposed between the first polarized light selecting unit and the transmitting polarization axis-varying unit.

Kuroiwa's features all provide for steady dark state in transmissive and reflective modes of operation (column 3 lines 64-66). Therefore at the time of the invention it would have been obvious to one of ordinary skill in the art to incorporate the above features to maintain a steady dark state across multiple modes of operation.

Regarding claim 9, Watson discloses all the limitations of the claim except a transparent film formed on a surface on the viewing side of the first polarized light selecting unit. However, it is well-known in the art to use a transparent protective film formed on a surface on the viewing side of the reflective polarizer to prevent damage to the display. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use add a protective film to prevent damage to the display.

Regarding claims 8 and 21, it is conventional to provide a flat viewing surface. Therefore, all the associated benefits of conventional use are obtained through its use (proven effectiveness, readily available parts). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use a flat viewing surface because of the benefits of conventional use.

Regarding claim 13, the reference does not disclose a polarized light selecting area of the first light selecting unit extending beyond an area overlapping a transmitting polarization axis varying area of the transmitting polarization axis varying unit. However, it is well-known in the art to make the top layer extend longer in both direction in order to provide adequate area to secure the liquid crystal panel. Therefore it would have been obvious to one of ordinary skill in the art to extend the area to make it easier to secure.

Regarding claims 14-16, the Watson does not disclose a light amount emitted in a normal direction is greatest in an emission angle distribution of luminous light of the lighting unit in claim 14. The luminous light of the lighting unit mainly distributed mainly at an emission angle ranging from zero to forty degrees of claim 15 or the luminous light of the lighting $1/50^{th}$ or below of a light amount in the normal direction for a range exceeding an emission angle of forty five degrees. However, desired light emission for a large majority of liquid crystal displays the normal direction (0 degrees) will receive the greatest amount of light emission. The vast majority of displays will also exhibit a majority of light distribution found between 0 and forty degrees because typically a user must be "in front" of a display to be able to see it. Regarding angles exceeding 45 degrees the light will be very close to $1/50^{th}$ or below for any display since at a viewing at of 45 degrees the user would have to be at either side of the display. Therefore, these limitations are obvious because these claims deal with the desired and actual response of an overwhelming majority of liquid crystal displays and are therefore obvious.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson as applied to claim 3 above, and further in view of Sekiguchi US Patent No 6690438. Watson discloses all the limitations of claim 17 except a color filter disposed on the backside of the first light-selecting unit. Sekiguchi discloses a color filter found on the backside of the first light-selecting unit (see cover figure element 9) in order to realize a color display. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to add a color filter in order to realize a color display device.

Regarding claim 20, the layers are disposed on each other, therefore bonding between the layers is inherent. Watson discloses all the limitation of the claim except the bonding material being transparent. However, transparent bonding material is well-known in the art in order to minimize distortion. Therefore at the time of the invention it would have been obvious to one of ordinary skill in the art to use a transparent bonding material to minimize distortion.

Regarding claim 22, the reference does not disclose a non-flat viewing surfaces, however it is well-known in the art to incorporate a liquid crystal panel an item that does not exhibit a flat surface such as a cellular phone with a curved panel. Therefore it would have been obvious to use a non-flat viewing surface if it were to be used in a device that where non-flat viewing surface were more suitable than flat one.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kotchick et. al US Patent 6624936. The reference does not disclose an input to the display device, wherein the input part is operated to allow switching between the transmissive display mode and mirror mode, however a user controlled interface switching between a transmissive mode and reflective mode is well-known in the art in order to reduce power consumption when backlighting is not necessary. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to incorporate this feature to reduce power consumption when backlighting is not necessary.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu
Examiner
AU 2871

KENNETH PARKER
PRIMARY EXAMINER